

## **ABSTRACT OF THE DISCLOSURE**

A system and reactor stack for generating hydrogen from a hydride solution in presence of a catalyst is disclosed. The reactor stack includes a number of reaction chambers, coolant chambers, and reactor plates. Each reaction chamber is configured to receive the hydride solution and to bring at least a portion of the hydride solution in contact with the catalyst. Each coolant chamber is configured to receive a coolant flow. The reactor plate has a first face and an opposing second face, where the first face defines a portion of each reaction chamber and the second face defines a portion of each coolant chamber. A number of reactor plates and separator plates alternate with one another, to define reaction chambers alternating with coolant chambers. Each reaction chamber is in fluid communication with an adjacent reaction chamber and each coolant chamber is in fluid communication with an adjacent coolant chamber.

10016132.121701